

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA

LAURA MCCABE and LATROYA
SIMPSON, individually and on behalf of a
class of similarly situated individuals,

Plaintiffs,

v.

INTERCONTINENTAL HOTELS GROUP
RESOURCES, INC.; INTERCONTINENTAL
HOTELS OF SAN FRANCISCO, INC.; SIX
CONTINENTS HOTELS, INC.; and DOES 2
through 10, inclusive,

Defendants.

Case No.: 3:12-cv-04818-NC

**DECLARATION OF RANDALL A.
SNYDER**

DECLARATION OF RANDALL A. SNYDER

I, Randall A. Snyder, hereby declare as follows:

1. My name is Randall A. Snyder. I am an adult over the age of 18 and a resident of the State of Nevada. I have personal knowledge of each of the matters stated herein, and if called to testify I could and would testify competently about them.
2. I am an independent telecommunications technology consultant and reside at 8113 Bay Pines Avenue, Las Vegas, Nevada, 89128. I have been retained by Keller Grover LLP and Law Offices of Scot D. Bernstein, A Professional Corporation, in the matter *McCabe v. Six Continents Hotels, Inc.*, 3:12-cv-04818-NC (N.D. Cal.) to provide my expert opinions relating to telephone number analysis in connection with certification of the proposed class. In particular, I have been asked to opine on the methodology and process whereby a list of telephone numbers can be analyzed to determine which are cellular telephone numbers and which are landline telephone numbers. In addition, I have been asked to provide my expert opinions regarding the ability to ascertain whether a particular individual is a member of the proposed class based solely upon a telephone number.
3. My opinions in this declaration are based on my education, knowledge, experience, expertise, training and my review of the following documents in this case: Second Amended Complaint for Damages and Injunctive Relief; Plaintiffs' Notice of Motion and Motion to Amend the Complaint; Memorandum of Points and Authorities in Support Thereof; Declaration of Eric A. Grover in Support of Plaintiffs' Motion to Amend the Complaint; Plaintiffs' Reply in Support of Motion to Amend the Complaint; Opposition to Motion to Amend the Complaint; Order Granting Plaintiffs' Motion to Amend the Complaint; Notice of Motion and Motion to Dismiss Plaintiffs' Second Amended Class

1 Action Complaint; Defendant Six Continents Hotels, Inc.'s Reply Brief in Support of Its
2 Motion to Dismiss Plaintiffs' Seconded Amended Complaint; Defendant's Request for
3 Judicial Notice in Support of Motion to Dismiss Plaintiffs' Second Amended Class Action
4 Complaint; Plaintiffs' Opposition to Motion to Dismiss Second Amended Class Action
5 Complaint; Plaintiffs' Request for Judicial Notice in Support of their Opposition to
6 Defendant's Motion to Dismiss the Second Amended Complaint; Declaration of Eric A.
7 Grover in Support of Their Opposition to Defendants' Motion to Dismiss the Second
8 Amended Complaint; Order Denying Six Continents' Motion to Dismiss; Deposition of
9 George Floor, II; Deposition of Michael Gardner; Deposition of Maria Bazley; Deposition
10 of Kevin Randall; Deposition of Jim Emery; California Penal Code § 632, "Eavesdropping
11 on or recording confidential communications"; California Penal Code § 632.7, "Cordless or
12 cellular radio telephones; intentional recordation of communications without consent;
13 punishment; exceptions"; and California Penal Code § 637.2, "Civil action by person
14 injured; injunction."

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17 4. A copy of my *curriculum vitae* is attached to this Declaration. I have over 28 years of
18 experience in telecommunications network and system architecture, engineering, design
19 and technology. I am an expert in the fields of both wireline and wireless
20 telecommunications networking technology. I have been retained as a testifying or
21 consulting expert in more than 75 cases regarding cellular telecommunications technology.
22 In addition, I have been retained as an expert by both plaintiffs and defendants in class
23 action lawsuits.
24
25 5. I have taught many classes and seminars on both wireline and wireless telecommunication
26 network technologies and have been a panelist and speaker at numerous conferences of the
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1 Institute of Electrical and Electronics Engineers (“IEEE”), the Personal Communication
2 Society (“PCS”), and the Cellular Telecommunications and Internet Association (“CTIA”)
3 as an expert in telecommunication networks. I spent seven years developing standards
4 within the American National Standards Institute’s subsidiary organization, the
5 Telecommunications Industry Association (“TIA”), providing technical contributions and
6 authoring and editing telecommunications proposed standards documents. Most notably, I
7 authored and oversaw the standardization of Interim Standard 93, providing
8 interconnection technology between wireline and wireless networks, which is a fully
9 accredited national standard of the American National Standards Institute (“ANSI”). I am
10 the co-author of two McGraw-Hill books: “Mobile Telecommunications Networking with
11 IS-41,” and “Wireless Telecommunications Networking with ANSI-41, 2nd edition,”
12 published in 1997 and 2001, respectively. These books have sold several thousand copies
13 and were required reading for wireless engineers at AT&T Wireless and Motorola for
14 several years. The latter book also has been relied upon and cited numerous times as a
15 reference for various patents in the telecommunications industry. I have been issued 18
16 patents myself on telecommunications networking technology and currently have six
17 additional published patents pending. I also have authored several articles on
18 telecommunications technology and have been quoted numerous times in industry trade
19 publications. I have consulted for and been employed by many wireline and wireless
20 telecommunications companies including McCaw Cellular, AirTouch, AT&T Wireless,
21 AT&T Mobility, Lucent, Nokia, Ericsson, Nextwave, MCI, Sprint and other
22 telecommunications technology vendors and service providers. I also was nominated in
23 2006 for a National Television Arts Emmy Award for Outstanding Achievement in
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Advanced Media Technology for unique wireless content distribution technology I designed while employed at Entriq, Inc.

6. Still more detail, as well as details of publications that I have authored or co-authored within at least the past 10 years, are provided in my *curriculum vitae*, a true and correct copy of which is attached hereto as Exhibit A, along with a list of cases in which I served as a testifying or consulting expert and my standard rate sheet. I am being compensated at the rate of \$450 per hour for my study, analysis and testimony in this case. (Exhibit A.)

INTRODUCTION

7. Based on my education, knowledge, experience, expertise, and training, my review of the relevant documents provided by the Plaintiff and the facts described above, it is my expert opinion that it is a common and straight-forward administrative process to determine (1) whether a telephone number included in a list or database of telephone numbers is a cellular telephone number or a landline (aka “wireline”) telephone number and (2) which telecommunications carrier served that telephone number at the time the alleged call violations occurred. Furthermore, it is my expert opinion that, for the cellular telephone numbers derived, it is possible to determine whether each calling party’s calling location was within or outside California.
8. Based on my education, knowledge, experience, expertise and training, it is my expert opinion that the proposed members of the class in this case can be definitively and clearly ascertained based solely on their telephone numbers.

TELEPHONE NUMBERING AND NUMBER ANALYSIS

9. In November, 2003, the Federal Communications Commission (“FCC”) mandated the implementation of a service known as “number portability” to be offered by both wireline

1 and cellular common carriers to all wireline and cellular subscribers. Specifically, the
2 service is characterized by two features: Local Number Portability (“LNP”) and Wireless
3 Local Number Portability (“WLNP”). LNP enables cellular subscribers to “port,” or
4 transfer, their home wireline telephone numbers from a wireline carrier to a cellular carrier
5 within a defined geographic local area to essentially become cellular telephone numbers
6 and vice versa. WLNP enables cellular subscribers to “port,” or transfer, their cellular
7 telephone numbers from one cellular carrier to another, allowing them, in effect, to own
8 their telephone numbers regardless of the cellular carrier to which they wish to subscribe.
9

10 10. Because of number portability, there is no distinguishing characteristic within the telephone
11 number format and the value of the digits themselves to determine which carrier services a
12 particular telephone number and whether the number is even a wireline or cellular number.
13 The standard numbering plan in the United States for both wireline and cellular telephone
14 numbers is the ten-digit number of the format “NPA-NXX-XXXX.” “NPA” refers to the
15 Numbering Plan Area, more commonly known as the three-digit “area code.” The NPA is
16 also of the format “NXX.” The entire format of the number, “NXX-NXX-XXXX” refers to
17 a numbering plan where the digit “N” can be any number from 2 through 9 and the digit
18 “X” can be any number from 0 through 9.
19

20 11. If a subscriber wishes to port his or her wireline telephone number to a cellular telephone
21 number, or to do the reverse, or to port his or her telephone number to another competing
22 wireline or cellular carrier, the carrier is required to do so within a few hours or less. To do
23 this, all of the wireline and cellular carriers are connected to a nationwide real-time number
24 portability database. The primary number portability database is owned, operated and
25 maintained by an independent company known as Neustar, Inc. Neustar maintains and
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operates by far the most authoritative and popular database serving the carriers. Because of the FCC mandate for number portability among all common carriers, a centralized real-time telephone number portability database needs to be employed so that all telephone calls can be routed to the appropriate carrier network and be completed. Without that database, it would be difficult or impossible to route the calls to the appropriate carriers.

12. The number portability database essentially associates each and every individual telephone number with a wireline or cellular carrier network identifier, enabling calls to be connected to the proper wireline or cellular carrier network. Before number portability came into effect, a number portability database was not necessary. Instead, the appropriate carrier was easily determined by simply examining portions of the telephone number itself, as the first six digits of the number clearly identified which telecommunications carrier owned and served that number. But with number portability, as part of the process of establishing each and every telephone call and delivering those calls to the proper network servicing the called party numbers, the number portability database must be queried in real-time so that calls will terminate in the proper carrier network and be delivered to the called party. Due to the critical nature of this service, the reliability of Neustar's database is, and must be, among the highest in the telecommunications industry.

13. Prior to November, 2003 and the implementation of number portability as mandated by the FCC, the North American Numbering Plan Administrator ("NANPA") provided blocks of numbers to each individual telephone carrier (either wireline or cellular) to provide to its subscriber customers. The NANPA is the North American authority that operates, manages and maintains all aspects of the use of telephone numbers in the United States and its territories, Canada, Bermuda and 17 Caribbean nations. Because number portability had yet

1 to take effect, the values of telephone numbers of the format “NXX-NXX-XXXX” easily
2 and unambiguously revealed whether an individual telephone number was served by a
3 wireline or cellular telecommunications carrier. This is because blocks of numbers
4 provided by the NANPA to the individual telecommunications carrier companies were
5 based upon the NPA values (the first three digits of the telephone number, with the format
6 “NXX”) and the exchange code values (the second three digits of the telephone number,
7 with the format “NXX”). From just before November 2003 through the present, in addition
8 to providing the number portability database, Neustar, Inc. has reliably maintained and
9 operated the North American Numbering Plan and serves as the NANPA.
10

11 14. There exist several commercially available third-party information service companies that
12 collect and maintain telephone and subscriber data either on behalf of the wireless carriers
13 or for various other commercial information purposes such as providing notice to class
14 members in class actions. These companies lease and maintain access to Neustar’s number
15 portability database.
16

17 15. I have a great deal of personal and technical experience with Neustar,¹ as well as third-
18 party information service companies including A.B. Data,² CompliancePoint³ (a subsidiary
19 of PossibleNOW), and Contact Center Compliance.⁴ All three are well-known
20 organizations that maintain and provide telephone number database services.
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22 16. A.B. Data, Ltd., CompliancePoint and Contact Center Compliance all maintain a complete
23 database, updated daily, of all telephone numbers and related information used in North
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25 ¹See <http://www.neustar.biz/resources/product-literature/lead-buyers-tpca#.Uz7lDl7qcjE>.

26 ²See <http://www.ABDataClassAction.com/NoticeAdministration.aspx>.

27 ³See <http://www.CompliancePoint.com>.

28 ⁴See <http://www.DNC.com>.

1 America. The telephone number database is provided to them by Neustar and provides
2 information about each and every telephone number in use in North America. That
3 information includes whether the telephone number is being served by a wireline or cellular
4 telecommunications carrier, the cellular carrier's name and the porting history of the
5 telephone number. In fact, these companies can even reveal the status of a particular
6 telephone number as of some given date in the past, regardless of whether the number ever
7 was ported prior to or after that date. Cellular telephone numbers that never were ported are
8 guaranteed always to have been cellular telephone numbers. Furthermore, the Neustar
9 database is updated on a daily basis to ensure that both past and present telephone number
10 data is always reliable and preserved. I have personally been involved in contracting with
11 these organizations to provide telephone number data analysis in class action lawsuits.
12

13 17. These information service companies, as well as many others, are commonly used by debt
14 collection and telemarketing companies to analyze databases or lists of telephone numbers
15 prior to calling them. Telephone numbers provided as an electronic list or database are
16 "scrubbed" by these companies to determine which ones are cellular telephone numbers
17 and which are wireline telephone numbers. "Scrubbing" is a term commonly used to
18 describe a process by which a list of telephone numbers is compared against another list of
19 telephone numbers having additional parameters associated with those numbers. If a
20 telephone number is revealed to be a cellular telephone number by this "scrubbing"
21 process, it can be treated appropriately and in accordance with all local, state and federal
22 statutes and regulations. For example, telemarketers need to recognize cellular telephone
23 numbers and eliminate them from their call databases so that they do not place marketing
24 calls to cellular telephones in violation of the Telephone Consumer Protection Act. Thus,
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1 that scrubbing capability exists and must exist for purposes entirely unrelated to the subject
2 matter of the present lawsuit.

3 **SUBSCRIBER CALL DETAIL RECORDS**

4 18. All cellular telecommunications carriers record, maintain and store detailed information
5 about all of their subscribers. That information includes call detail records (“CDRs”).
6 CDRs include detailed information regarding each individual subscriber’s telephone calls,
7 including each mobile-originating call to a telephone number from the cellular subscriber
8 and each individual mobile-terminating call from a telephone number to the cellular
9 subscriber. Each line-item CDR represents an individual call and includes the telephone
10 number of the calling party (*i.e.*, the telephone number of the party originating the call), the
11 telephone number of the called party (*i.e.*, the telephone number of the party receiving the
12 call), the date the call was made, the time the call was made, the length of the call, the
13 switching system from where the call originated and the cell site serving the subscriber for
14 the call. CDRs including this data, and potentially additional data if requested, can be
15 obtained and produced by the wireless carriers via subpoena using only the cellular
16 telephone number as the unique identifying piece of data that will serve as the information
17 for a detailed call record search.
18

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20 19. The switching system from which a mobile-originated call emanates and the connected cell
21 site are at static building locations with geographic addresses. The CDRs reveal
22 identification codes for the actual geographic locations of these network elements and
23 provide the geographic cellular area from where the call originated. Thus, CDRs for
24 particular cellular telephone numbers can provide information revealing whether the calling
25 party was within the boundaries of California or not when the cellular call was placed. In
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1 cases where the cell site information is no longer available, the identification code of the
2 switching system is still available as it is an information element included in the standard
3 CDRs. Thus, even when the cell site information no longer is available, it still is possible to
4 determine whether a call originated from within California.

5 20. Exhibit B contains the latest publicly available information regarding cellular data and
6 information that can be obtained under subpoena from each of the primary cellular carriers
7 and the corresponding data retention periods for each of those carriers. Although this
8 information is dated March, 2011, I have no reason to believe that this information it is not
9 still reliable and accurate. In addition, Exhibit C describes the cellular call detail
10 information available from Sprint Corporation; Exhibit D describes the cellular call detail
11 information available from AT&T Mobility; and Exhibit E describes the cellular call detail
12 information available from Verizon Wireless. Based on my experience and knowledge, I
13 am confident that comparable data and information can be provided from all other cellular
14 carriers.
15
16

17 **ASCERTAINABILITY**

18 21. The process to ascertain and identify proposed class members solely from their cellular
19 telephone numbers is a straightforward and highly effective administrative process.

20 22. Cellular carriers maintain bill copies, payment histories and subscriber identifying
21 information including the subscriber's name and address and the time period when the
22 subscriber had a particular cellular telephone number in service (see Exhibit B). The
23 primary carriers maintain this data for at least three to five years. All of this detailed and
24 recorded information for each subscriber can be obtained via subpoena using only the
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1 cellular telephone number as the unique identifying piece of data required for a detailed
2 subscriber search.

3 23. In cases where subscriber identifying information is no longer maintained by a particular
4 cellular carrier, there are commercially available third-party information service companies
5 that collect and maintain subscriber data either on behalf of the cellular carriers or for
6 various other commercial services. These companies maintain comprehensive and
7 extensive databases that identify subscribers based solely on their cellular telephone
8 numbers and maintain this data over several years. These companies include the previously
9 mentioned Neustar, A.B. Data, Ltd., CompliancePoint and Contact Center Compliance, all
10 well-known organizations that maintain extensive demographic databases containing
11 cellular telephone subscription information and associated identifying data. These
12 databases are updated on a daily basis to ensure that both past and present cellular
13 subscriber data is always reliable and preserved. I have been involved in contracting with
14 these organizations to provide such cellular subscriber and identifying data in many class
15 action lawsuits.
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18 24. Each of the cellular carriers can be subpoenaed or one of the appropriate third-party
19 information service companies can be contracted to produce subscriber identifying
20 information for the date an alleged call violation occurred. That information can include
21 name, address and other information, and be retrieved based solely on the provided cellular
22 telephone number representing a particular subscriber.
23

24 **SUMMARY OF OPINIONS**

25 25. Based on my education, knowledge, experience, expertise and training, my review of the
26 relevant documents provided by the Plaintiff and the facts described above, it is my expert
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1 opinion that any size list or database of telephone numbers can be reliably analyzed to
2 determine (1) which numbers are cellular telephone numbers and (2) each number's porting
3 history. It is a common and straightforward administrative process to determine whether a
4 telephone number included in a list or database of telephone numbers is a cellular
5 telephone number. In fact, these companies can even reveal the status of a particular
6 telephone number as of some given date in the past, regardless of whether the number ever
7 was ported before or after that date. Furthermore, it is my expert opinion that call detail
8 record information can be obtained that reveals whether a proposed member of the class
9 was within California at the time an alleged call was made.
10

11 26. Based on my education, knowledge, experience, expertise and training, it is my expert
12 opinion that the proposed members of the class in this case can be definitively and clearly
13 ascertained based solely on their cellular telephone numbers. The process to identify these
14 proposed class members from their cellular telephone numbers is a straightforward and
15 highly accurate administrative process.
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17 27. My opinions in this declaration are based upon extensive experience in the
18 telecommunications industry, a detailed understanding of telecommunications systems and
19 a detailed understanding of telecommunications carrier operations. I hereby reserve the
20 right to supplement or modify my opinions detailed in this report to the extent that new
21 information is made available through discovery or other means.
22

23 28. I declare that the foregoing is true and correct subject to the laws of perjury of the State of
24 California and the United States of America.

25 Executed in Las Vegas, Nevada, on this 1st day of July 2014.

26 

27 Randall A. Snyder

EXHIBIT A

Randall A. Snyder Curriculum Vitae

Professional Summary

Randall Snyder is a recognized expert in wireless and cellular telecommunications technology, executive manager and leader, designing, developing, marketing and managing mobile telecommunication system and software products. He has over 30 years of experience specializing in wireless telecommunications technology, network architecture, design, system engineering, marketing and product management. He is a reputable leader and strategic developer with a successful background building startups. He is skilled presenter, communicator, and educator with success impacting organizational performance, corporate reputation and increasing sales. Mr. Snyder is results-oriented, highly organized and creatively focused on adhering to organizational missions and philosophy while designing best-of-breed mobile technology solutions. He has extensive travel experience to Asia-Pac, Latin America and Europe supporting engineering, sales and marketing with familiarity with wireless network operators and manufacturers worldwide. Mr. Snyder has several years of wireless standards development with extensive travel throughout Asia-Pac, Latin America and Europe.

Expertise

- Business Relations: Seminars, Sales Presentations and Sales Engineering
- Legal: Provisional and Patent Applications, Subject Matter Expert Consultant, Expert Witness and Testimony, Litigation Support, Sales and Vendor Contract Negotiations and Review, Qualified as an Expert in Federal District Court
- Management: Strategic/Tactical Planning, Product Management, Marketing Management, Operations Management, Competitive Analysis, Problem Resolution, Project Planning, Risk Management
- Organizational: P&L Management, Budget Planning, Expense Reduction and Cost Control
- Technology: Wireless Network Engineering, Design and Architecture, Multimedia Systems, Mobile Internet, Mobile Video, Mobile Marketing, mCommerce and Mobile Payments, Mobile Telecommunications Standards, 3G, UMTS, LTE, LBS, SMS, MMS, WAP, GSM, and ANSI-41 (CDMA) Networking, Signaling System No. 7 (SS7), Communications Protocols, Telephone Consumer Protection Act (TCPA), Automatic Telephone Dialing Systems (ATDS)

Education

<u>Year</u>	<u>College or University</u>	<u>Degree</u>
1984	Franklin and Marshall College	B.A., Mathematics (minor in Astronomy)

Randall A. Snyder
Curriculum Vitae

Professional Experience

From: January 2007
To: Present
Organization: Wireless Research Services, LLC; Las Vegas, NV
Title: President and Founder
Summary: Responsible for consulting business, and revenue as well as being the principal consultant. Areas of subject matter expertise include mobile and cellular networking, 3G, LTE, UMTS, GSM, ANSI-41, LBS, SMS, MMS, WAP, SS7, Diameter Signaling, Automatic Telephone Dialing Systems (ATDS) and mobile multimedia systems. With this expertise, primary consulting is in the area of system and product architecture, design, development, management and marketing as well as patent preparation and development, expert reports, expert testimony and litigation support. Expert witness and technology consultant for over 75 legal cases; authored over 60 expert reports for intellectual property cases, Telephone Consumer Protection Act (TCPA) cases and wireless technology litigation cases.

Notable Case:

- Personally cited by United States Court of Appeals for the Ninth Circuit. Satterfield v. Simon & Schuster, Inc. No. 07-16356, D.C. No. CV-06-02893-CW Opinion. Appeal from the United States District Court for the Northern District of California. Opinion by N.R. Smith, Circuit Judge. Filed June 19, 2009.

Result of expert opinion greatly expanded the TCPA and was followed by formal FCC Declaratory Rulings that text messages are calls as defined by the TCPA and a stored electronic list of telephone numbers falls within the definition of an Automatic Telephone Dialing System (ATDS).

From: September 2007
To: August 2010
Organization: Finsphere Corporation; Bellevue, WA
Title: Vice President Product Management & Wireless Engineering
Summary: Was among the first handful of employees at Finsphere prior to Series A funding. As vice president of product management and wireless engineering and a member of the executive management team, was responsible for product management activities and wireless technology solutions for Finsphere's products. These products encompassed mobile location based software-as-a-service (SaaS) products offered primarily to financial institutions and banks. Responsibilities included product requirements and system functionality, strategic planning, R&D of new technologies, wireless network interconnectivity as well as wireless technology for Finsphere's products. Was also responsible for market strategies, white papers and development and management of intellectual property and patent applications.

Randall A. Snyder
Curriculum Vitae

From: May 2004
To: April 2007
Organization: Entriq, Inc.; Carlsbad, CA
Title: Vice President Product Management
Summary: Was responsible for the entire product management team and system architecture for Entriq's products and services. Products encompassed mobile and broadband pay media applications (specializing in video), digital rights management (DRM) and security solutions, e-commerce and m-commerce systems as well as ad management and delivery solutions for both broadband and mobile media services. Responsibilities also included network and protocol analysis, market analysis, evaluation of third-party software and services, all vendor contract negotiations, RFP responses and overall administrative responsibility for the entire product line. Was responsible for directing and managing the technical writing department producing all user documentation associated with the products. Was nominated for a National Television Arts and Sciences Emmy Award for Outstanding Achievement in Advanced Media Technology for unique mobile technology designed, developed and commercially deployed as part of Entriq's solution.

From: February 2002
To: November 2003
Organization: m-Qube, Inc. (acquired by Verisign); Boston, MA
Title: Vice President Product Management and Carrier Marketing
Summary: Was responsible for the entire product management and carrier marketing teams, member of the executive management team and one of the founders. Was responsible for all product management, system engineering and product strategy for all business conducted with the wireless industry and carriers. Was in charge of the market strategy and wireless network architecture for m-Qube's mobile marketing service, a value-added service offering mobile marketing solutions to wireless carriers using short message services (SMS) for GSM and CDMA networks. The service architecture enabled branded companies to deploy promotional marketing and messaging campaign dialogs with mobile subscribers via SMS. The network architecture required definition and design of all aspects of the overall network including SMS technology, interconnectivity to the wireless carriers, signaling, traffic management, market requirements for features and services, network equipment specifications and OA&M.

From: April 2001
To: February 2002
Organization: Bitfone Corporation; Mountain View, CA
Title: Vice President Product Management and Marketing
Summary: Was responsible for the entire product management team and all of the company's product definitions, strategies and positioning. Had direct responsibility for market and product requirements, market research, competitive analysis, product strategy and sales strategy. Bitfone's products included the iBroker, a mobile Internet technology infrastructure platform to enhance WAP, MMS, mobile e-mail and wireless

Randall A. Snyder
Curriculum Vitae

messaging. Was also responsible for the mProve product (obtained via merger with Digital Transit, Inc.) providing over-the-air firmware and software update technology to mobile devices.

From: November 2000
To: April 2001
Organization: Openwave Systems (via merger of Phone.com and Software.com); Redwood City, CA
Title: Executive Director Emerging Technologies
Summary: Was responsible for new 3G technologies and providing market and product plans for those technologies for the entire product line. Primary responsibility for the 3GPP Multimedia Messaging Service (MMS), collecting market requirements from customers, developing corporate strategy for MMS and preparing the organization for additional development of the product. In addition, taught wireless technology classes to the different departments at Openwave and educated them on wireless service provider strategies and network technologies.

From: March 2000
To: November 2000
Organization: @Mobile and Software.com (via acquisition); Santa Barbara, CA
Title: Director Wireless Product Management
Summary: Was responsible for the product managers and for all of the wireless internet infrastructure products. Responsibilities included the overall market and product strategy for Software.com's wireless e-mail, short message service, instant messaging and unified messaging products. Was responsible for the overall revenues generated from these products based on detailed product plans and internal organizational planning. Much of his time was spent working with the executive management team and the sales directors on corporate market strategy.

From: December 1999
To: March 2000
Organization: FreeSpace Communications, Inc.; Palo Alto, CA
Title: Consulting Network Systems Engineer
Summary: Was responsible for the complete design of the backbone network architecture for a new broadband fixed wireless data network. This new architecture incorporated DSL as the backbone network technology. The network architecture required definition and design of all aspects of the overall network plan including DSL technology, IP technology, ATM technology, interconnectivity to the PSTN, operations signaling, traffic engineering, market requirements for network features and services, network equipment specifications and OA&M.

From: April 1992
To: December 1999
Organization: Synacom Technology, Inc.; San Jose, CA

Randall A. Snyder Curriculum Vitae

Title: Executive Director Product Marketing and Management

Summary:

1998 – 1999 Executive Director Product Marketing and Management

- Responsible for managing the entire product management and marketing department of Synacom Technology, including market research and planning, product management and market communications. Lead the entire design, definition and product direction of all aspects of Synacom's products.

1997 – 1998 Director Systems Engineering

- Responsible for coordinating and managing the overall functional and requirements specifications for all Synacom's products as well as the detailed test plans used for alpha system testing of those products. Also responsible for directing and managing the technical writing department producing all of the user documentation associated with all of the products. Provided the primary sales engineering support for sales and marketing and was involved in nearly every aspect of the product lifecycle.

1996 – 1997 Director Consulting Services and Principal Engineer

- Responsible for obtaining, coordinating and managing all technical consulting projects performed by the company. These projects included wireless network architecture and design for both IS-41 and GSM networks for dozens of client companies (carriers and equipment manufacturers). In this role, continued as a member of both the ANSI/TIA TR45.2 Subcommittee for cellular radio intersystem operations standards and the ANSI/TIA TR46 Committee for 1900 MHz GSM PCS standards. Major contributor to TR46 in the area of GSM-to-IS-41 network interworking. Also authored, edited and published TIA standard specification IS-93 for cellular network interconnections to the PSTN and ISDN.

1992 – 1996 Principal Engineer

- Consulted for McCaw Cellular, AT&T Wireless, AirTouch Cellular, AirTouch Satellite Services, Globalstar, Nokia, MCI, Sprint PCS, XYPoint, NextWave, NewNet American Personal Communications, CTIA and several other national and international wireless telecommunications companies.
 - Wrote wireless network design and analysis papers including HLR specifications, Authentication Center specifications, PCS network design, short message service (SMS) design, intelligent network applications of wireless technology and in-house expert in signaling protocols. Extensive experience with Signaling System No. 7, including both protocol implementation and design. Authored the Standard Requirements Document for the SS7-based A-interface between the base station and MSC used throughout the TIA. Also involved in the design of the Bellcore WACS/PACS technology, digital cellular network service and feature descriptions, SCPs and HLRs. Extensive experience developing the architecture and design of distributed intelligent networks including, SS7, cellular, PCS, AIN and WIN networks. Key member of the original Cellular Digital Packet Data (CDPD) architecture and design team. Designed the CDPD air interface protocol emulator
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Randall A. Snyder
Curriculum Vitae

developed and marketed by AirLink Communications, Inc.

From: December 1990
To: April 1992
Organization: AT&T Bell Laboratories; Whippany, NJ
Title: Consulting Member of the Technical Staff
Summary: Evaluated wireless technology services for the Wireless Systems Architecture group. Also participated as a system engineer on the design of the Global System for Mobile (GSM) communication architecture and a software engineer developing the base station controller (BSC) for GSM. Also responsible for planning, coordinating, designing and testing the SS7 protocol software for the GSM A-interface between the BSC, MSC and operations and maintenance center (OMC). High-level and detailed design specifications were developed to coordinate the protocol testing between two remote laboratories. Provided the traffic analysis and traffic engineering of call traffic for the BSC. Specifically designed and developed the dynamic traffic overload control subsystem for the BSC. Presentations were given to technical staffs at multiple Bell Laboratories facilities supporting this work.

From: May 1987
To: December 1990
Organization: DGM&S, Inc.; Mt. Laurel, NJ
Title: Senior Staff Consultant
Summary: Responsible for the design, development and test coordination of an advanced intelligent network applications platform for a service control point (SCP). Also spent several years as a consulting software engineer for Siemens AG, developing and testing SS7 and call control software for the EWSD digital switching system for international as well as U.S. national network implementations. This work involved extensive travel to both Frankfurt and Munich, Germany for software system design and testing. Also involved in the concept, design and technical marketing of proprietary enabling technology software products for SS7 and ISDN.

From: May 1986
To: May 1987
Organization: ADP, Inc.; Mt. Laurel, NJ
Title: Senior Software Engineer and Analyst
Summary: Responsible for the design and development of data communications and real time database application software for a host data center that provided real time financial information to large brokerage houses. Data communication protocol expertise in HDLC, RS-232 and IBM BiSync.

Randall A. Snyder Curriculum Vitae

From: June 1984
 To: May 1986
 Organization: C3, Inc.; Cape May, NJ
 Title: Consulting Systems Analyst and Software Engineer
 Summary: Civilian consulting systems analyst and engineer to the U.S. Coast Guard Electronics Engineering Center (EECEN) for C3, Inc. Developed sophisticated database software for shipboard use including inventory and law enforcement applications. The work included the follow-through of the entire project lifecycle including writing of requirements, functional, design and program specifications, coding, debugging, alpha and beta testing, release, shipboard installation and continuing technical support of the product. Received a personal commendation from Admiral W.F. Merlin, Chief, Office of Command, Control and Communications, for successful efforts on these projects.

Professional Affiliations, Achievements & Awards

- Member, Mobile Multimedia Institute
- Nominated, Technology and Engineering Emmy Award for Outstanding Achievement in Advanced Media Technology, 2006

Patents & Publications

Issued Patents

<u>Patent</u>	<u>Date</u>	<u>Description</u>
US 8,670,753	3/11/2014	System and Method for Determining and Delivering Appropriate Multimedia Content to Data Communication Devices
Mexico 308720 B	12/04/2013	Sistema y Metodo para el Analisis Automatizado que Compara una Ubicacion del Dispositivo Inalambrico con Otra Ubicacion Geografica
US 8,588,748	11/19/2013	System and Method for Mobile Identity Protection of a User of Multiple Computer Applications, Networks or Devices
US 8,437,784	05/07/2013	System and Method to Initiate a Mobile Data Communication Utilizing a Trigger System
US 8,374,634	02/12/2013	System and Method for Automated Analysis Comparing a Wireless Device Location with Another Geographic Location
US 8,280,348	10/02/2012	System and Method for Mobile Identity Protection Using Mobile Device Signaling Network Derived Location Pattern Recognition
US 8,155,677	04/10/2012	Mobile Messaging Short Code Translation and Routing System

Randall A. Snyder Curriculum Vitae

		and Method
New Zealand 580499	08/31/2012	System and Method for Automated Analysis Comparing a Wireless Device Location with Another Geographic Location
US 8,131,262	03/06/2010	System and Method to Initiate a Mobile Data Communication Utilizing a Trigger System
US 8,116,731	02/14/2012	System and Method for Mobile Identity Protection of a User of Multiple Computer Applications, Networks or Devices
Australia 2008/115299	02/09/2012	System and Method for Automated Analysis Comparing a Wireless Device Location with Another Geographic Location
S. Africa 2009/06947	01/26/2011	System and Method for Automated Analysis Comparing a Wireless Device Location with Another Geographic Location
US 7,792,518	09/07/2010	System and Method to Initiate a Mobile Data Communication Utilizing a Trigger System
US 7,403,788	07/22/2008	System and Method to Initiate a Mobile Data Communication Utilizing a Trigger System
US 6,128,389	10/03/2000	Authentication Key Management System and Method
US 5,970,144	10/19/1999	Secure Authentication-Key Management System and Method for Mobile Communications
US 5,850,445	12/15/1998	Authentication Key Management System and Method
US 5,799,084	08/25/1998	System and Method for Authenticating Cellular Telephonic Communication

Published Patents Pending

<u>Patent Application</u>	<u>Date</u>	<u>Description</u>
20110202407	08/18/2011	System and Method for Improving Internet Search Results Using Telecommunications Data
20110154447	06/23/2011	Systems and Methods for Authenticating a User of a Computer Application, Network or Device Using a Wireless Device
20090204815	08/13/2009	System and Method for Wireless Device Based User Authentication
20080119210	05/22/2008	Wireless Messaging Address System and Method
20080114884	05/15/2008	Centralized Mobile and Wireless Messaging Opt-Out Registry System and Method
20060224943	10/05/2006	Method and System to Automatically Publish Media Assets

Publications

1. What Workers Want from Wireless by Randall A. Snyder; April 15, 2004. America's Network, Advanstar Communications, Santa Ana, California USA.
2. Snyder, Randall A. and Gallagher, Michael D. Wireless Telecommunications Networking with ANSI-41 Second Edition; McGraw-Hill, New York, NY USA; © Copyright 2001 Randall A. Snyder and Michael D. Gallagher. *Foreword by Tom Wheeler, current Chairman, Federal Communications Commission.*

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3. Forecasting SS7 Traffic by Randall A. Snyder; November 1, 2000. Wireless Review, Volume 17, Number 21, Intertec Publishing, Overland Park, KS USA.
 4. Gallagher, Michael D. and Snyder, Randall A. Mobile Telecommunications Networking with IS-41; McGraw-Hill, New York, NY USA; © Copyright 1997 Michael D. Gallagher and Randall A. Snyder.
 5. IS-41/GSM Interoperability by Randy Snyder; December, 1995, Cellular Networking Perspectives, Cellular Networking Perspectives, LTD, Calgary, Alberta, Canada.

Citations

1. Commendation from Admiral W.F. Merlin, Chief, Office of Command, Control and Communications, USCG (1986)
2. Method and Apparatus for Routing Short Messages, US Patent #6308075, Issued October 23, 2001.
3. Mediation Software for Delivery of Interactive Mobile Messaging and Personalized Content to Mobile Devices. Patent Application # 20020120779, August 29, 2002.
4. Automatic In-Line Messaging System, US Patent #6718178, Issued April 6, 2004.
5. Method and System for Wireless Instant Messaging, US Patent #7058036, Issued June 6, 2006.
6. United States Court of Appeals for the Ninth Circuit. Satterfield v. Simon & Schuster, Inc. No. 07-16356, D.C. No. CV-06-02893-CW Opinion. Appeal from the United States District Court for the Northern District of California. Opinion by N.R. Smith, Circuit Judge. Filed June 19, 2009.

**Randall A. Snyder
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Litigation Support Experience

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to short message service (SMS) technology
Law Firm: Keogh Law, Ltd.
Case Name: Johnson v. Yahoo! Inc.
Services Provided: Testifying expert for plaintiff
Disposition: Ongoing
Date: 2014

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to short message service (SMS) technology
Law Firm: Jacobs Kolton, Chtd.
Case Name: Nunes v. Twitter, Inc.
Services Provided: Testifying expert for plaintiff
Disposition: Ongoing
Date: 2014

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to unlawful cellular telephone calls
Law Firm: Manning Law, PLLC
Case Name: Manning v. Lendio, Inc.
Services Provided: Testifying expert for plaintiff
Disposition: Ongoing
Date: 2014

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to short message service (SMS) technology
Law Firm: The Law Offices of Joseph R. Manning, Jr.
Case Name: Vargem v. Tax Defense Partners, LLC
Services Provided: Testifying expert for plaintiff
Disposition: Ongoing
Date: 2014

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to unlawful cellular telephone calls
Law Firm: Steptoe & Johnson PLLC
Case Name: Cain v. Monitronics, International, Inc.
Services Provided: Consulting expert for defendant
Disposition: Ongoing

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Date: 2014

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to short message service (SMS) technology and unlawful cellular telephone calls

Law Firm: Mantese Honigman Rossman and Williamson, P.C.

Case Name: Glassbrook v. Rose Acceptance, Inc. and First National Bank of America

Services Provided: Testifying expert, expert reports, depositions for plaintiff

Disposition: Ongoing

Date: 2014

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to unlawful cellular telephone calls

Law Firm: Kazerouni Law Group, APC

Case Name: Iniguez v. The CBE Group, Inc.

Services Provided: Testifying expert, expert reports for plaintiff

Disposition: Settled

Date: 2014

Expert Engagement:

Type of Matter: California Invasion of Privacy Act (Penal Code §§ 630) class action related to unlawful recording of telephone conversations

Law Firm: Keller Grover LLP and Law Offices of Scot D. Bernstein

Case Name: McCahey v. Six Continents Hotels, Inc.

Services Provided: Testifying expert, expert reports for plaintiff

Disposition: Ongoing

Date: 2014

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to unlawful cellular telephone calls

Law Firm: Keogh, Cox & Wilson, Ltd.

Case Name: Heatherington v. Omaha Steaks, Inc.

Services Provided: Testifying expert for plaintiff

Disposition: Ongoing

Date: 2014

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to short message service (SMS) technology

Law Firm: Lemberg & Associates LLC

Case Name: Shiyan v. Lucille Roberts Health Clubs, Inc.

Services Provided: Testifying expert, expert reports for plaintiff

Disposition: Ongoing

Date: 2014

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Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to unlawful cellular telephone calls
Law Firm: Lemberg & Associates LLC
Case Name: Meyer v. Receivables Performance Management LLC
Services Provided: Testifying expert for plaintiff
Disposition: Ongoing
Date: 2014

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to unlawful cellular telephone calls
Law Firm: Lemberg & Associates LLC
Case Name: Creel v. GC Services, L.P.
Services Provided: Testifying expert, expert reports, depositions for plaintiff
Disposition: Settled
Date: 2014

Expert Engagement:

Type of Matter: Intellectual property (patents) related to short message service (SMS) technology and communication protocols
Law Firm: White & Case LLP
Case Name: Nokia Corporation v. Google Inc.
Services Provided: Testifying expert for defendant
Disposition: Settled
Date: 2014

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to unlawful cellular telephone calls
Law Firm: Lemberg & Associates LLC
Case Name: Horton v. Cavalry Portfolio Services LLC
Services Provided: Testifying expert, expert reports for plaintiff
Disposition: Ongoing
Date: 2013 – 2014

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to short message service (SMS) technology
Law Firm: Law Office of Scott D. Owens, Esq. and Farmer, Jaffee, Weissing, Edwards, Fistos & Lehrman, P.L.
Case Name: Legg v. Voice Media Group, Inc.
Services Provided: Testifying expert, expert reports for plaintiff
Disposition: Class certification denied
Date: 2013 – 2014

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Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to short message service (SMS) technology
Law Firm: Edelson LLC
Case Name: Sterk v. Path, Inc.
Services Provided: Testifying expert, expert reports for plaintiff
Disposition: Settled
Date: 2013 – 2014

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to short message service (SMS) technology
Law Firm: Francis & Mailman, P.C.
Case Name: Dominguez v. Yahoo! Inc.
Services Provided: Testifying expert, expert reports, depositions for plaintiff
Disposition: Ongoing
Date: 2013 – 2014

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to short message service (SMS) technology
Law Firm: McGuire Law, P.C.
Case Name: Smith v. Microsoft Corporation
Services Provided: Testifying expert, expert reports for plaintiff
Disposition: Ongoing
Date: 2013 – 2014

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to short message service (SMS) technology
Law Firm: Heyrich Kalish McGuigan, PLLC
Case Name: Gragg v. Orange Cab Company, Inc., et al.
Services Provided: Testifying expert, expert reports, depositions for plaintiff
Disposition: Ongoing
Date: 2013 – 2014

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to short message service (SMS) technology
Law Firm: Wooten, Kimbrough & Normand, PA
Case Name: Murphy v. DCI Biologicals, LLC
Services Provided: Testifying expert, expert reports for plaintiff
Disposition: Settled
Date: 2013 – 2014

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action

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related to unlawful cellular telephone calls
Law Firm: McGuire Law, P.C.
Case Name: Murray v. Bill Me Later, Inc.
Services Provided: Testifying expert for plaintiff
Disposition: Settled
Date: 2013 – 2014

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to short message service (SMS) technology
Law Firm: Kazerouni Law Group, APC
Case Name: Sherman v. Yahoo! Inc.
Services Provided: Testifying expert, expert reports for plaintiff
Disposition: Settled
Date: 2013 – 2014

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 and Fair Debt Collection Practices Act (FDCPA) 15 U.S.C. 15 § 1692 related to unlawful cellular telephone calls
Law Firm: Collins & Story, PA
Case Name: Keen v. Delta Outsource Group, Inc.
Services Provided: Testifying expert, expert reports, depositions for plaintiff
Disposition: Ongoing
Date: 2013 – 2014

Expert Engagement:

Type of Matter: Intellectual property (patents) related to short message service (SMS) technology and mobile banking
Law Firm: Panovia Group LLP
Case Name: N5 Technologies, LLC v. Capital One, N.A., et al.
Services Provided: Testifying expert, expert reports, depositions for plaintiff
Disposition: Settled
Date: 2013 – 2014

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 and California's Unfair Competition Law, Cal. Bus. & Prof. Code § 17200 class action related to short message service (SMS) technology
Law Firm: Hartmann and Kananen
Case Name: Baird v. Sabre, Inc.
Services Provided: Testifying expert, expert reports for plaintiff
Disposition: Dismissed
Date: 2013 – 2014

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action

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related to short message service (SMS) technology and unlawful charging of cellular telephone customers

Law Firm: Edelson LLC
Case Name: Lee v. Stonebridge Life Insurance Company
Services Provided: Testifying expert, expert reports, depositions for plaintiff
Disposition: Settled
Date: 2012 – 2014

Expert Engagement:

Type of Matter: Intellectual property (patents) related to short message service (SMS) technology and multimedia message service (MMS) technology

Law Firm: Baker Botts LLP
Case Name: Intellectual Ventures LLC v. AT&T Mobility LLC, T-Mobile USA, Inc., Sprint Spectrum L.P., US Cellular Corporation
Services Provided: Testifying expert, expert reports for defendants
Disposition: Ongoing
Date: 2012 – 2014

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to short message service (SMS) technology

Law Firm: Keogh Law, Ltd.
Case Name: Wanca v. LA Fitness International, LLC
Services Provided: Testifying expert, expert reports, depositions for plaintiff
Disposition: Settled
Date: 2013

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to unlawful cellular telephone calls

Law Firm: Lemberg & Associates LLC
Case Name: Penn v. NRA Group, LLC
Services Provided: Consulting expert for plaintiff
Disposition: Ongoing
Date: 2013

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to unlawful cellular telephone calls

Law Firm: Lemberg & Associates LLC
Case Name: Reed v. GC Services LP
Services Provided: Consulting expert for plaintiff
Disposition: Settled
Date: 2013

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action

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related to short message service (SMS) technology
Law Firm: The Lavery Law Firm
Case Name: Volpe v. Caribbean Cruise Line, Inc.
Services Provided: Consulting expert for plaintiff
Disposition: Dismissed
Date: 2013

Expert Engagement:

Type of Matter: Washington Consumer Protection Act, RCW 19.86 and RCW 80.36.400 related to unfair business practices and unlawful cellular telephone calls
Law Firm: Williamson and Williams Law
Case Name: Kids Northwest v. First Data Corporation
Services Provided: Consulting expert for plaintiff
Disposition: Ongoing
Date: 2013

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to short message service (SMS) technology
Law Firm: George Rikos Law
Case Name: Van Patten v. Vertical Fitness
Services Provided: Testifying expert, expert reports for plaintiff
Disposition: Ongoing
Date: 2013

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 and California Business and Professions Code § 17200 class action related to short message service (SMS) technology
Law Firm: Milberg LLP
Case Name: D'Agostino v. Jesta Digital, LLC (dba Jamster)
Services Provided: Testifying expert, expert reports for plaintiff
Disposition: Settled
Date: 2013

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 and Restrictions on Telemarketing, Telephone Solicitation, and Facsimile Advertising 47 C.F.R. § 64.1200(d)(3) class action related to unlawful cellular telephone calls
Law Firm: Burke Law Offices, LLC
Case Name: Benzion v. Vivint, Inc.
Services Provided: Testifying expert, expert reports, depositions for plaintiff
Disposition: Ongoing
Date: 2013

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action

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related to unlawful cellular telephone calls
Law Firm: Lemberg & Associates LLC
Case Name: Rutigliano v. Convergent Outsourcing, Inc.
Services Provided: Testifying expert, expert reports for plaintiff
Disposition: Ongoing
Date: 2013

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action
related to short message service (SMS) technology
Law Firm: Kazerouni Law Group, APC
Case Name: Emanuel v. The Los Angeles Lakers, Inc.
Services Provided: Testifying expert, expert reports for plaintiff
Disposition: Dismissed
Date: 2013

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action
related to short message service (SMS) technology
Law Firm: Kazerouni Law Group, APC
Case Name: Barani v. Wells Fargo Bank, N.A.
Services Provided: Consulting expert for plaintiff
Disposition: Settled
Date: 2013

Expert Engagement:

Type of Matter: Intellectual property (patents) related to wireless calling party identification
technology
Law Firm: K&L Gates LLP
Case Name: Cequent Inc. v. Apple Inc.
Services Provided: Consulting expert for plaintiff
Disposition: Settled
Date: 2013

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action
related to unlawful cellular telephone calls
Law Firm: Donald A. Yarbrough, Esq.
Case Name: Mais v. Gulf Coast Collection Bureau, Inc.
Services Provided: Testifying expert, expert reports for plaintiff
Disposition: Settled
Date: 2013

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action
related to unlawful cellular telephone calls
Law Firm: Donald A. Yarbrough, Esq.

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Case Name: Manno v. Healthcare Revenue Recovery Group, LLC
Services Provided: Testifying expert, expert reports, depositions for plaintiff
Disposition: Settled
Date: 2013

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to short message service (SMS) technology and unlawful charging of cellular telephone customers

Law Firm: Law Office of Scott D. Owens, Esq.
Case Name: Wojcik v. Buffalo Bills, Inc.
Services Provided: Testifying expert, expert reports for plaintiff
Disposition: Settled
Date: 2012 – 2013

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to short message service (SMS) technology and unlawful charging of cellular telephone customers

Law Firm: Law Office of Scott D. Owens, Esq.
Case Name: Keim v. ADF Midatlantic, LLC (Pizza Hut)
Services Provided: Testifying expert for plaintiff
Disposition: Ongoing
Date: 2012 – 2013

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to unlawful cellular telephone calls

Law Firm: Liner Grode Stein Yankelevitz Sunshine Regenstreif & Taylor LLP
Case Name: Connelly v. Hilton Grand Vacations Company, LLC
Services Provided: Testifying expert, expert reports, depositions for defendant
Disposition: Class certification denied
Date: 2012 – 2013

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to short message service (SMS) technology

Law Firm: Kirby Law Group
Case Name: Agne v. Papa John's International, Inc., et al.
Services Provided: Consulting expert for plaintiff
Disposition: Settled
Date: 2012

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action and NY GBL 399-P class action related to unlawful calls

Law Firm: Bellin and Associates LLC

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Case Name: Tipoo v. Enhanced Recovery Company, LLC
Services Provided: Testifying expert, consulting expert, discovery motions for plaintiff
Disposition: Undisclosed
Date: 2012

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to unlawful calls

Law Firm: Burke Law Offices, LLC
Case Name: Bailey v. Household Finance Corporation, et al.
Services Provided: Testifying expert, expert reports for plaintiff
Disposition: Undisclosed
Date: 2011 – 2012

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to short message service (SMS) technology

Law Firm: Burke Law Offices, LLC
Case Name: Annoni v. FYISMS.com, LLC
Services Provided: Testifying expert, expert reports for plaintiff
Disposition: Undisclosed
Date: 2011 – 2012

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to short message service (SMS) technology and unlawful charging of cellular telephone customers

Law Firm: KamberEdelson, LLC
Case Name: Schrock v. Wenner Media LLC
Services Provided: Consulting expert for plaintiff
Disposition: Undisclosed
Date: 2011

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to short message service (SMS) technology and unlawful charging of cellular telephone customers

Law Firm: Summit Law Group
Case Name: Kramer v. Autobyte, Inc. and B2Mobile, LLC
Services Provided: Consulting expert for defendant
Disposition: Settled
Date: 2011

Expert Engagement:

Type of Matter: Intellectual property (patents) related to wireless location based services (LBS)
Law Firm: Mintz, Levin, Cohn, Ferris, Glovsky and Popeo PC
Case Name: Emsat Geolocation Technology, LLC v. CellCo Limited Partnership (dba

Randall A. Snyder
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Services Provided: Verizon Wireless), et al.
Consulting expert, USPTO affidavits for patent reexamination for plaintiff
Disposition: Undisclosed
Date: 2010 – 2011

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to unlawful calls
Law Firm: Keogh Law, Ltd.
Case Name: Griffith v. Consumer Portfolio Services, Inc.
Services Provided: Testifying expert, expert reports for plaintiff
Disposition: Undisclosed
Date: 2010 – 2011

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to unlawful calls
Law Firm: Keogh Law, Ltd.
Case Name: Dobbin v. Wells Fargo Auto Finance, Inc.
Services Provided: Testifying expert, expert reports for plaintiff
Disposition: Dismissed
Date: 2010 – 2011

Expert Engagement:

Type of Matter: Intellectual property (patents) related to short message service (SMS) technology
Law Firm: Nelson Bumgardner Casto PC
Case Name: Celltrace LLC v. AT&T Inc., et al.
Services Provided: Consulting expert for plaintiff
Disposition: Undisclosed
Date: 2010

Expert Engagement:

Type of Matter: California Constitution, Article VI, § 10, class action related to short message service (SMS) technology and unlawful charging of cellular telephone customers
Law Firm: KamberEdelson, LLC
Case Name: VanDyke v. Media Breakaway, LLC
Services Provided: Testifying expert, expert reports for plaintiff
Disposition: Settled
Date: 2009

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to unlawful calls
Law Firm: Gordon & Rees LLP
Case Name: Allen v. Rickenbacker Collection Services
Services Provided: Consulting expert for defendant
Disposition: Undisclosed

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Date: 2009

Expert Engagement:

Type of Matter: Intellectual property (trademarks) related to short message service (SMS) technology

Law Firm: Fish & Richardson P.C.

Case Name: Cricket Communications, Inc. v. HipCricket, Inc.

Services Provided: Testifying expert, expert reports, depositions for plaintiff

Disposition: Undisclosed

Date: 2008 – 2009

Expert Engagement:

Type of Matter: California Constitution, Article VI, § 10, class action related to short message service (SMS) technology and unlawful charging of cellular telephone customers

Law Firm: KamberEdelson, LLC

Case Name: Albrecht v. mBlox, Inc., et al.

Services Provided: Testifying expert, expert reports for plaintiff

Disposition: Settled

Date: 2008 – 2009

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 227 class action related to short message service (SMS) technology

Law Firm: Blim & Edelson, LLC

Case Name: Satterfield v. Simon & Schuster, Inc.

Services Provided: Testifying expert, expert reports for plaintiff

Disposition: Settled

Date: 2007 – 2009

Expert Engagement:

Type of Matter: Class action related to short message service (SMS) technology and unlawful charging of cellular telephone customers

Law Firm: KamberEdelson, LLC

Case Name: Walker v. Motricity, Inc.

Services Provided: Testifying expert, expert reports, depositions for plaintiff

Disposition: Settled

Date: 2008

Expert Engagement:

Type of Matter: Class action related to short message service (SMS) technology and unlawful charging of cellular telephone customers

Law Firm: KamberEdelson, LLC

Case Name: Rynearson v. Motricity, Inc.

Services Provided: Testifying expert, expert reports, depositions for plaintiff

Disposition: Settled

Date: 2008

Expert Engagement:

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Type of Matter: California Constitution, Article VI, § 10, class action related to short message service (SMS) technology and unlawful charging of cellular telephone customers
Law Firm: KamberEdelson, LLC
Case Name: Reed v. Sprint Nextel Corporation
Services Provided: Testifying expert, expert reports for plaintiff
Disposition: Settled
Date: 2008

Expert Engagement:

Type of Matter: Class action related to short message service (SMS) technology and unlawful charging of cellular telephone customers
Law Firm: KamberEdelson, LLC
Case Name: Paluzzi v. CellCo Limited Partnership (dba Verizon Wireless) and mBlox. Inc.
Services Provided: Consulting expert for plaintiff
Disposition: Settled
Date: 2008

Expert Engagement:

Type of Matter: Class action related to short message service (SMS) technology and unlawful charging of cellular telephone customers
Law Firm: KamberEdelson, LLC
Case Name: Nava v. Predicto Mobile, LLC
Services Provided: Consulting expert for plaintiff
Disposition: Settled
Date: 2008

Expert Engagement:

Type of Matter: Class action related to short message service (SMS) technology and unlawful charging of cellular telephone customers
Law Firm: KamberEdelson, LLC
Case Name: McFerren v. AT&T Mobility, LLC
Services Provided: Consulting expert for plaintiff, settlement agreement
Disposition: Settled
Date: 2008

Expert Engagement:

Type of Matter: California's Unfair Competition Law, Cal. Bus. & Prof. Code § 17200 class action related to short message service (SMS) technology and unlawful charging of cellular telephone customers
Law Firm: KamberEdelson, LLC
Case Name: Guerrero v. MobileFunster, Inc.
Services Provided: Consulting expert for plaintiff
Disposition: Settled
Date: 2008

Expert Engagement:

Type of Matter: Computer Fraud and Abuse Act, 18 U.S.C. Article § 1030, class action related to

Randall A. Snyder
Curriculum Vitae

short message service (SMS) technology and unlawful charging of cellular telephone customers
Law Firm: KamberEdelson, LLC
Case Name: Gray v. Mobile Messenger Americas, Inc.
Services Provided: Consulting expert for plaintiff
Disposition: Settled
Date: 2008

Expert Engagement:

Type of Matter: Class action related to short message service (SMS) technology and unlawful charging of cellular telephone customers
Law Firm: KamberEdelson, LLC
Case Name: Goddard v. Google, Inc.
Services Provided: Consulting expert for plaintiff
Disposition: Settled
Date: 2008

Expert Engagement:

Type of Matter: Class action related to short message service (SMS) technology and unlawful charging of cellular telephone customers
Law Firm: KamberEdelson, LLC
Case Name: Duffy v. Nevis Mobile, LLC
Services Provided: Consulting expert for plaintiff
Disposition: Settled
Date: 2008

Expert Engagement:

Type of Matter: Class action related to short message service (SMS) technology and unlawful charging of cellular telephone customers
Law Firm: KamberEdelson, LLC
Case Name: Criswell v. MySpace, Inc.
Services Provided: Testifying expert, expert reports for plaintiff
Disposition: Settled
Date: 2008

Expert Engagement:

Type of Matter: Class Action Fairness Act of 2005, 28 U.S.C. §§ 1332, 1453 and 28 U.S.C. § 1367(a) class action related to short message service (SMS) technology and unlawful charging of cellular telephone customers
Law Firm: KamberEdelson, LLC
Case Name: Bradberry v. mBlox, Inc.
Services Provided: Consulting expert, damage estimates for plaintiff
Disposition: Settled
Date: 2008

Expert Engagement:

Type of Matter: California Constitution, Article VI, § 10, class action related to short message

Randall A. Snyder
Curriculum Vitae

Law Firm: service (SMS) technology and unlawful charging of cellular telephone customers
KamberEdelson, LLC
Case Name: Ayers v. Media Breakaway, LLC
Services Provided: Testifying expert, expert reports for plaintiff
Disposition: Settled
Date: 2008

Expert Engagement:

Type of Matter: Intellectual property (patents) related to wireless location based services (LBS)
Law Firm: Hahn Loeser & Parks, LLC
Case Name: Emsat Geolocation Technology, LLC v. CellCo Limited Partnership (dba Verizon Wireless), et al.
Services Provided: Consulting expert for plaintiff
Disposition: Undisclosed
Date: 2008

Expert Engagement:

Type of Matter: Class action related to short message service (SMS) technology and unlawful charging of cellular telephone customers
Law Firm: Blim & Edelson, LLC
Case Name: Valdez v. Sprint Nextel Corporation
Services Provided: Consulting expert, damages estimate for plaintiff
Disposition: Settled
Date: 2007

Expert Engagement:

Type of Matter: Telephone Consumer Protection Act (TCPA), 47 U.S.C. § 201 class action related to short message service (SMS) technology and unlawful charging of cellular telephone customers
Law Firm: Blim & Edelson, LLC
Case Name: Bradberry v. T-Mobile USA, Inc.
Services Provided: Testifying expert, expert reports, numerosity for class certification for plaintiff
Disposition: Settled
Date: 2007

Expert Engagement:

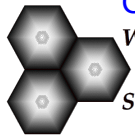
Type of Matter: California Computer Crime Law, Cal. Pen. Code § 502 and California's Unfair Competition Law, Cal. Bus. & Prof. Code § 17200 class action related to short message service (SMS) technology
Law Firm: KamberEdelson, LLC
Case Name: Abrams v. Facebook, Inc.
Services Provided: Testifying expert, expert reports for plaintiff
Disposition: Settled
Date: 2007

Expert Engagement:

Type of Matter: Intellectual property (patents) related to short message service (SMS) technology

Randall A. Snyder
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Law Firm:	Paul Hastings LLP
Case Name:	TeleCommunication Systems, Inc. v. Mobile365, Inc.
Services Provided:	Testifying expert, expert reports, depositions, trial testimony for defendant
Disposition:	Settled
Date:	2007

**Wireless Research Services, LLC**
2014 Rate Sheet

ITEM	FEE
Non-refundable Retainer at Time of Engagement	\$4,000
Expert Witness Consulting, Expert Reports	\$450 per hour
Depositions, In-court Testimony	\$500 per hour
Required Travel, Lodging, Board and Administrative Expenses	\$1,000 per airline travel day plus actual incurred expenses
Invoicing	Payment due upon receipt
Penalty for Late Payments	10% of total invoice added after each 30 days late until full payment is received

By signing below and returning an executed copy to Wireless Research Services, LLC along with payment of the non-refundable retainer, you agree to the payment terms contained on this rate sheet.

Agreed to by:_____

Law firm/Company:_____

Case Name:_____

Date:_____

EXHIBIT B



Retention Periods of Major Cellular Service Providers

Prepared by the Computer Crime and Intellectual Property Section, U.S. Department of Justice, (202) 514-1026, and FBI's Cellular Analysis Survey Team

	Verizon	AT&T	Sprint/Nextel**	T-Mobile
Subscriber Information	Post-paid: 3-5 years*	Depends on length of service	Unlimited	5 years
Call detail records	1 year	Pre-paid: varies Post-paid: 5-7 years	18 mo. (approx.)	Pre-paid: 2 years Post-paid: 5 years
Cell towers used by phone for calls	1 year	From July 2008	18 mo. (approx.) for Sprint CDMA devices; 18-24 months for Nextel iDEN devices	6 months
Text message (SMS) records	1 year	Post-paid: 5-7 years	18 mo. (approx.) for Sprint CDMA devices; not available for Nextel iDEN devices	Pre-paid: 2 years Post-paid: 5 years
Text message (SMS) content	3-5 days (never more than 10)	Not retained	Not retained	Not retained
Cell towers used for SMS transmission	Not retained	1 year	Varies	180 days
Pictures (MMS)	PixPlace only (customer can add or delete pictures any time)	Not retained	Contact provider	Can be stored online. Retained until deleted, or until service is canceled or suspended.
IP session information	1 year	72 hours maximum	18 mo. (approx.)	Not retained
IP source & destination information	90 days	72 hours maximum	6 mo. (approx.)	Not retained
Bill copies (post-paid only)	3-5 years, but only last 12 months readily available *	5-7 years	7 years	Pre-paid: 2 years Post-paid: 5 years
Payment history (post-paid only)	3-5 years, check copies for 6 months*	Depends on length of service	Unlimited	5 years

• May vary by former company.

** For records older than mid-November 2007, Sprint can only provide bill reprints with outgoing info.



Retention Periods of Major Cellular Service Providers

Prepared by the Computer Crime and Intellectual Property Section, U.S. Department of Justice, (202) 514-1026, and FBI's Cellular Analysis Survey Team

	TracFone	Cricket	MetroPCS	US Cellular
Subscriber Information	2 years	18 months	6 months minimum	7 years
Call detail records	2 years	6 months	6 months	1 year
Cell towers used by phone for calls	Not available	6 months (?)	6 months	1 year
Text message (SMS) records	Not available	Phone-to-phone: Not retained Web-to-phone: 3 mos.	60 days	1 year
Text message (SMS) content	Not available	Phone-to-phone: Not retained Web-to-phone: 3 mos.	60 days	3-5 days
Cell towers used for SMS transmission	Unknown	Not retained	Not retained	Not retained
Pictures (MMS)	Not available	Not retained	Not retained	Unknown
IP session information	30 days	Not retained	Not retained	1 year
IP source & destination information	30 days	Not retained	Not retained	Unknown
Bill copies (post-paid only)	Not available	Unknown	Unknown	7 years
Payment history (post-paid only)	Life of the phone	Unknown	Unknown	1 year

EXHIBIT C

Subpoena Compliance
Sprint Corporate Security
michelle.2.bersbach@sprint.com

Enclosures

*Earlier this year Sprint Nextel changed to Sprint Corporation. Effective October 1, 2013 Sprint will no longer accept legal demands directed to Nextel Communications. Please direct all future legal demands to Sprint Corporation. Thank you for your cooperation.

*Please note, records for the iDEN network do not exist after 7/2/13 as the network was decommissioned.

*Notice: If the records contained in the attached package are utilized in trial proceedings, and if you require a records custodian for authentication, be advised Sprint does not have local representatives. Sprint's Trial Team is located at our Corporate Headquarters in Overland Park, Kansas. You will need to contact the Trial Team at CSTrialTeam@Sprint.com or call our office at 800-877-7330. Our office will require at least two-weeks notice in addition to pre-paid travel arrangements by your office.

*Search results indicate one or more of the numbers listed on the above-referenced legal demand may belong to Boost, a Sprint prepaid phone service. Our office maintains subscriber information for Boost accounts, but this information is often inaccurate or incomplete, as no identification is required when purchasing a Boost phone. Payment information is also available for Boost accounts. However, this information, while accurate, may not be complete. As Boost accounts are prepaid, no bill reprints are available. We are able to provide call detail records for iDEN and CDMA Boost accounts for the most recent 18-24-month period.

Dear Requestor,

Due to a change in Sprint company standard, Sprint Legal Compliance will be converting our call detail and cell site reports to show "NEID" instead of "Repoll". NEID stands for Network Element Identifier. To accommodate our requestors during this transition, we will keep both the Repoll and NEID numbers in the call detail and cell site spreadsheets. After this time, we will only be providing the NEID numbers on these reports. We apologize for any inconvenience and confusion this may cause in the transition period.

Sincerely,
Sprint Legal Compliance

Key to Understanding CDMA Call Detail Reports

Calling number:	This column reflects the number placing the call (the individual who initiated the call). If the call is an outgoing call, this will be the Sprint PCS target number.
Called number:	This column reflects the number actually called. In most cases this number will be the same as the number in the "Dialed Digits" column. If the number has been forwarded, or if there is a routing number, then this will be reflected. If the number has a 11 in front of the area code, that means the call rolled to voicemail and was NOT answered by the customer.
Dialed digits:	This column reflects the digits that the caller enters into the keypad of the phone. If the call is an incoming call, this will be the Sprint PCS target number.
M_R #:	Mobile Role (Type of Call). Listed as outgoing, incoming, routed call or undetermined.
Start Date:	Date and time the call was initiated.
End Date:	Date and time the call was ended.
Duration:	Duration of call, in seconds.
NEID:	This reflects which network element handled the call.
Repoll number:	This reflects which phone switch handled the call.

Key to Understanding CDMA Call Detail Reports, cont.

*Routed calls come in two main varieties. The first, also known as Temporary Local Directory Number (TLDN). They may be considered to be bridge/router numbers to complete a call. The second is when a call is not answered, but is routed to voicemail. Calls routed straight to voicemail will also have an "11" before the number indicated in the "Called_Nbr" column. For handsets using visual voicemail, these numbers may replace the "11" in the called number column: (800) 877-2400, (866) 677-8204, (866) 222-2604, and (877) 836-4746. The indicator that Sprint's Visual Voicemail platform was used within the session appears as 624500000XXXXXX.

*The CDMA call detail report may indicate the sending and receipt of text messages and e-mail. While not flagged as text messages, the line will indicate no duration, the dialed digits column will either be blank or will show an e-mail address, and the repoll column may contain one of the following numbers: 13; 291-298; 347; 506-533; 681-684; 686-688. NEIDs 191-198 226-229 291-294

* On the CDMA network, Sprint maintains Gateway and SWAT (Soft Wireless Access Tandem) networks in areas where there are large Sprint customer populations. These provide the required extra space that helps Sprint maintain all of the calls. When a call moves through a gateway or SWAT cell site information is not retained and is not recoverable. NEIDs for Gateways 124-125, NEIDs for SWATs 96, 184-190, 263, 363-365

*Please be advised that as of October 12, 2010, all CDMA CDR (Call Detail Record) text message time stamps are kept in Central time zone. Records prior to October 12, 2010 are either in Central or Eastern time zone. Sprint is unable to determine which time zone is reflected in records older than October 12, 2010.

*Short codes, also known as short numbers, are special telephone codes, significantly shorter than full telephone numbers, which can also be used to address SMS and MMS messages from mobile phones or fixed phones. Short codes are often associated with automated services. An automated program can handle the response and typically requires the sender to start the message with a command word or prefix. A list of short codes is not maintained by Sprint as number of short codes is extensive and constantly growing. **Example of a short code**- the customer may want updates pertaining to their favorite sports team. The customer would sign up with that team in order to receive text message updates relevant to the team.

Key for Understanding Sprint Direct Connect Reports

Client Address- The non iDEN Direct Connect/Push to Talk address of the client.

Total Active Talk Duration- The cumulative active time for the client in seconds

Call GMT Start Timestamp- The starting time of the call in GMT time

Call GMT End Timestamp- The end time of the call in GMT time

Record Id- Identifies the records structure

CDR (Call Detail Record)

CATT (Call Attempt)

CAVT (Call Availability)

CALT (Call Alert)

Call Id- Sprint Direct Connect identifier for the chat session. Together with the File Sequence Number and the Output Sequence Number these three fields group Sprint Direct Connect call sessions with their participants

Member Type Code- this record indicates if the Client Address was the originator or a participant in the session

O for Originator

P for Participant

File Sequence Number- Each incoming file has a sequence number that is used to uniquely identify records along with the record number within the file. Together with the Call Id and the Output Sequence Number these three fields group Sprint Direct Connect call sessions with their participants

Output Sequence Number- Uniquely identifies the record within the Sprint Direct Connect report. Together with the Call Id and the File Sequence Number these three fields group Sprint Direct Connect call sessions with their participants

Initial Conference Id- For CALT, CAVL and CATT this is the conference id system assigned initial conference id

Ending Conference Id- For CALT, CAVL and CATT this is the conference id system assigned ending conference id

Duration (sec)- Cumulative participation time for this participant in seconds

Key for Understanding Sprint Direct Connect Reports

Last Reason Participant Left Code- The reason why the participant last left the call

0 for an unknown reason

1 for the client terminated its session by sending a request to leave the group (End)

2 for the call was ended by the server

3 for the client could not be contacted

4 for the client did not participate in the call

5 for some system error ended the client's session

Call Originator Source SIP URI- the SIP URI of the device originating the session

*SIP stands for Session Initiation Protocol and it is everything before the @ in the email address

*URI stands for Universal Resource Locator and it is everything after the @ in the email address

CDMA Network Changes

Changes are currently taking place to Sprint's CDMA network due to the addition of new network elements and new technologies. During this time, there may be some incongruity on call reports. Sprint's Engineering Department is currently engaged on these issues.

Network Vision

The technology used by the Network Vision is an advancement upon the existing Sprint 3G network. Part of the Network Vision Plan is to create additional and convert pre-existing cell towers to support the network traffic. Sprint is currently updating/adding new switches and cell sites. Network Vision will provide a better experience for Sprint customers.

During this time of continual change with the Sprint CDMA network, Sprint Legal Compliance will provide requestors with cell towers that are listed as "pending" along with towers that are listed as "active" on the Sprint cell site lists. Cell site lists are updated monthly. Therefore, sites that state "pending" may actually be "active" at the time records/cell site lists are released.

Current Vision Network Elements are:

Location	NEID	Repoll		Location	NEID	Repoll		Location	NEID	Repoll
Akron OH	422	93		Ft Worth TX	434	28		Nashville TN	441	36
Atlanta GA	431	24		Hawaii	449	48		Norfolk VA	445	41
Atlanta GA	440	35		Houston TX	423	94		Omaha NE	429	26
Bayamon PR	425	4		Houston TX	435	29		Orlando FL	438	33
Bayamon PR	426	5		Kansas City MO	432	25		Orlando FL	439	34
Buffalo NY	427	11		Kansas City MO	443	38		Phoenix AZ	442	37
Charlotte NC	444	39		Miami FL	437	31		Richmond VA	448	47
Cheyenne WY	428	13		Morrisville NC	446	42		Stockton CA	424	3
Chicago IL	420	72		Morrisville NC	447	43		Tacoma WA	430	20
Ft Worth TX	433	26		Nashville TN	436	30				

***Not all network elements are currently active. ***

FAQ's:

I. Akron, Ohio is currently working in tandem with the Chicago Vision Repoll.

- A. The time zone indicated in the CDR (call detail records) will be derived from the switch. Therefore, the time stamps for call detail records with Repoll 93/NEID 422 (Akron switch) will reflect the Eastern Time Zone and the time stamps for call detail records with Repoll 72/NEID 420 (Chicago switch) will reflect the Central Time Zone.

4G Data

Sprint is also investing in 4G data services speeds with both LTE and WiMax. The network is always looking for the best possible service for customer handsets, tablets and data cards. With that said, IP connection records may be produced from one of three reports. These reports are called:

3G IPDR- third generation data provided on handsets, tablets and data cards

WiMAX- fourth generation data which provides faster data retrieval to Sprint customers

LTE/eHRPD- LTE is another type of fourth generation data. LTE stands for Long Term Evolution eHRPD is a process that helps assist in the handoffs from one data technology to another.

Currently, 4G data connections are used by Sprint customers that have Smart phones (such as Android and iPhones) and data cards. As technology advances more and more handsets will be 4G data capable. Web Traffic reports (a report that provides the website address visited by a Sprint customer) are available only for handsets that are 2G capable.

Sprint
Corporate Security
Mailstop: KSOPHM0206
6480 Sprint Parkway
Overland Park, KS 66251
913-315-0660
Fax: 816-600-3111

Star Codes

Your request has been fulfilled, at least in part, by what is known as a CDMA CDR Report. A CDMA CDR Report lists information about incoming/outgoing calls including the digits dialed on the handset. As a dialing shortcut, PCS subscribers may use star codes (an asterisk (*) plus a short number sequence) when using our wireless telephones. On call detail reports the star may be indicated by a letter "B". This code will appear in the dialed digits column of the CDMA CDR Report. Following is a list of the most common star codes. Additional star codes may exist in the market from which the call is made. Please contact the Subpoena Compliance Group at the number listed above for more information concerning star codes.

- *18 - Ping the nearest tower, call delivery activate
- *180 - Call delivery deactivate
 - *2 - Customer Care
 - *3 - Payment Center
- *31 - Three Way Calling
 - *4 - Account information
 - *5 - Spanish Customer care
- *67 - Caller ID block
- *68 - Override caller ID block
- *70 - Cancel call waiting for that call
- *711 - Customer Care
 - *72 - Activates call forwarding
- *720 - Deactivates call forwarding
- *73 - Call forwarding no answer
- *74 - Call forward busy
- *811 - Customer Care
 - *82 - Override caller ID block- for that call
- *911 - 911
- *073 - Cancel call forward no answer
- *074 - Cancel call forward busy

Other numbers which may appear in the dialed digits column:

- 411 - Directory assistance
- 611 - Customer Care
- 711 - Telecommunications Relay Service(hearing impaired)
- 911 - Can also dial 0911 or 1911)
- c777 - Web Browsing (SINS)

RECEIVING RECORDS IN ELECTRONIC FORMAT

Your request has been satisfied, at least in part, by records furnished on compact disc (CD) or via e-mail. Sprint uses CDs when the response is particularly voluminous or if records are requested in electronic format. Once "recorded" the CD cannot be deleted, re-recorded or appended. Information on CD is normally in one of three formats:

RICH TEXT FORMAT (RTF)

These files are text files readable by any word processor such as Microsoft Word/Works or WordPerfect. Generally, we use this format for letters, summaries and explanatory documents. To retrieve these documents, open your word processor of choice then use the open file command (normally listed under File in the Window Menu bar). Navigate to the drive containing the CD and double click on the file name. While you may not manipulate the file and re-save directly on the CD, it may be manipulated and re-saved elsewhere.

SPREADSHEET FILES (XLS or CSV)

These files are normally used for longer items such as the call detail reports or a listing of all cell sites associated with a particular switch/repoll. We use Microsoft Excel to generate these files and recommend that product for viewing them. To retrieve these documents, open your spreadsheet program of choice then use the open file command (normally listed under File in the Window Menu bar). Navigate to the drive containing the CD and double click on the file name. These files may be uploaded to products such as PenLink in either CSV or XLS format. Please see your program documentation for assistance. While you may not manipulate the file and re-save directly on the CD, it may be manipulated and re-saved elsewhere.

TAGGED IMAGE FORMAT (TIF or TIFF)

This format is used for stored bills and for print outs from our customer service/billing system. All Windows based machines come with TIF viewers but accessing the viewer software may be unfamiliar. To retrieve these documents, open the My Computer folder on your desktop or Open the Windows Explorer (not Internet Explorer). Navigate to the drive containing the CD and **RIGHT** click on the file name. This will open a menu. Choose "OPEN WITH." A new dialog box will open. Look for applications that do Imaging. The most common are "Imaging", "Imaging Preview", "Microsoft Imaging", "Kodak Imaging" and "Microsoft Office Document Imaging." Single click on your choice and also click on the check box which says, "Always use this program to open these files." This will set the program as your default and next time you need to open a TIF file, you may just double click on the desired document. Once open, most TIF viewers only display the current page. To go to the next page, use the page up/down keys on your computer keyboard or look for helper arrows. You may also wish to peruse the Help feature offered in every Windows based program. Please note: these files may not normally be uploaded to products such as PenLink since they are not open for manipulation. Please see your program documentation for assistance.

You may also receive files in a bundled, WinZip format (ZIP). These files contain other files (of the three types listed above). Zipped files are used to save space on particularly large requests. To open a ZIP file, open the My Computer folder on your desktop or Open the Windows Explorer (not Internet Explorer). Navigate to the drive containing the CD and double click on the file name. If this does not work, return to the folder containing your document and **RIGHT** click on the file name. This will open a menu. Choose "OPEN WITH." A new dialog box will open. Look for applications that do zipping. The most common is "WinZip." Single click on your choice and also click on the check box which says, "Always use this program to open these files." This will set the program as your default and next time you need to open a ZIP file, you may just double click on the desired document.

Please feel free to contact the Sprint Subpoena Compliance Department for further assistance: 800-877-7330.

EXHIBIT D



Please refer to the legend below that explains the columns and the information displayed on the attached report.

LEGEND FOR AT&T MOBILITY RECORDS LABELED "DATA SOURCE: SCAMP"

The attached file is being sent in a text file format to provide you with the ability to download into your data analysis system.

Once downloaded into an EXCEL format, header information will appear at the top displaying the AT&T 6-digit file number, creation date, the AT&T database source, date the report was run, and the account number of the target.

You may receive up to 3 separate reports for usage: Voice, Data and SMS. This is indicated at the beginning of each report. The fields you will find on usage reports are as follows:

VOICE:

Conn. Date and Conn. Time: The date and time the call was actually connected.

Seizure Time: The number of minutes and seconds it took from the time the 'Send' button was pressed to the time the call was connected to the network.

Originating Number: If target number appears in this field, the call is an outgoing call and the called number is in the Terminating Number field.

Terminating Number: If target number appears in this field, the call is an incoming call and the caller's number is in the Originating Number field. In rare instances, you may see all *** in this column. This is an indication that an invalid number was entered.

Elapsed Time: Number of minutes and seconds of the call between the connection time and the end of the call, also known as call duration. Does not include seizure time.

Number Dialed: This column represents the number that was actually dialed by the calling party or the voicemail access number if the call was forwarded to voicemail.

IMEI: International Mobile Equipment Identification number.

IMSI: International Mobile Subscriber Identity number.

Description: This field uses 2 key characters that describe the parties involved and a short description suffix key word that describes what is known about how the call was handled. Outbound calls will always be described as "DIR". "M" indicates the presence of an AT&T Mobility number. "m" indicates the presence of another wireless carrier's number. The number "2" will always be shown in the middle of the two characters and is used in lieu of "to". For example, M2O means AT&T Mobile "to" a Non-Mobile Phone Number. This report will not show routing by the receiving side of an outbound call. The tables below describe the potential values.

CIC: Stands for Carrier Identification Code. The number in this column translates to identifying the interexchange carrier of the call. A public listing of CIC codes can be found at the following url: http://www.nanpa.com/reports/reports_cic.html

Call Code: Represents the type of call that was processed on the wireline network. Call Code information can be obtained from the AskCalea website. If the LEA does not have access to AskCalea, please contact 1-855-532-2532

Key Character Definitions

Field	Description
M	AT&T Mobile Phone (based on billing validation)
m	Other Carrier Mobile Phone (based on billing validation)
O	Non-Mobile Phone Number

Calls will have 4 potential "suffix" descriptions.

Description Suffix Definitions

Field Suffix	Description
DIR	Outbound calls will display DIR except for voicemail checks directly from the handset (VMC). Inbound calls will display DIR if no forwarding took place. Either the phone was answered or rang and was not answered.
VMC	Call was from handset to check Voicemail box.
VMB	Call was routed to VoiceMail number.
FWD	Call was forwarded to another number.
	Forwarding action could not be determined.

A call described as "m2M_DIR" would be interpreted as a call from another carrier's mobile phone to an AT&T mobile phone that was not forwarded. For example, the call was not routed to voicemail. A call described as "O2M_FWD" would be a call from a non-mobile phone number to an AT&T mobile number that was forwarded to the number listed in the Terminating Number field.

Cell Location: Column only displays if location information was requested. The first two numbers indicate the beginning and ending LAC/CID information followed by the longitude/latitude and the azimuth (center point of the sector) of all cell sites that serviced the call. If the target was traveling, you may see more than one cell site in this field which will indicate hand offs while the call is in progress.

**DATA USAGE:**

The Data report displays many of the same columns as on the other reports, but also includes:

Bytes Up: The number of bytes sent from mobile station to the network.

Bytes Dn: The number of bytes from the network to the mobile station.

Access Pt: Displays the network interface access point.

Cell Location: Column only displays if location information was requested. Same information is displayed as noted above.

SMS USAGE:

Originating Number: If target number appears in this field, the SMS is outgoing and the receiving number is in the Terminating Number field.

Terminating Number: If the target number appears in this field, the SMS is incoming and the number initiating the SMS is in the Originating Number field.

Description: This field describes the direction of the message and a short description that describes what is known about the type of message. Outbound calls will always be described as "OUT" with no suffix description, and inbound messages will provide a description when it is known.

Key Prefix Definitions

Field	Description
IN	Inbound Message
OUT	Outbound Message

Description Suffix Definitions
(These are ALL SYSTEM GENERATED MESSAGES)

Field Suffix	Description
VMN	VoiceMail message is waiting notification
VMP	VoiceMail box has been accessed notification.
VMA	Indicates either a voice mail notification or accessed notification.
AGM	General notification message from AT&T (time to add credit etc.).
ACB	Account Balance check response.
ACM	Account minutes available check response.
ACD	Account data used check response.
MMS	Multi Media Service

A message described as "IN_VMP" would be interpreted as an inbound system message to the phone notifying the user that the voicemail box has been checked. A message labeled as "IN_ACB" means the user requested an "Account Balance Check" and the reply was received by the phone.

Cell Location: The first two numbers indicate the beginning and ending LAC/CID information followed by the longitude/latitude and the azimuth (center point of the sector) of all cell sites that serviced the call. If the target was traveling, you may see more than one cell site in this field.

NOTE: If you requested call records and the target subscriber's device is an iPhone with the most current operating system (iOS 5 or above) and they send a text message to another device with the iOS 5 (or above) operating system, text messages between these devices will not appear in the detail records we have provided. This is because these text messages are delivered via the iMessage service through Apple. If the iMessage transaction occurred on the AT&T network, AT&T only captures the transaction as a data session and no other transactional information is stored or available.

EXHIBIT E



Explanation Form For Calls With Cellsites

<u>SWITCH</u>	<u>DATE</u>	<u>TIME</u>	<u>ORIG C/G</u>	<u>TERM C/G</u>	<u>DIR</u>	<u>MDN</u>	<u>CALLED #</u>	<u>CPN</u>	<u>SZR</u>
This is the switch that the call is hitting off of	This is the date of the call	This is the start time of the call	This is valid cell site for outgoing calls. <u>Valid only on MO calls</u>	This is valid cell site for an incoming call. <u>Valid only on MT calls</u>	MO=Outbound call	This is your target #	If the call was an out going call=then the outgoing # that your target dialed will be in this column	This is the calling party #	This is the duration of the call in seconds
					MT=Incoming call		If the call was an incoming #=then your target # will appear this column	If the call was an outgoing call=then your target # will be in this column	
					MF=Incoming call to voicemail- In rare cases, it could be mobile forwarding			If the call was an incoming call=then the incoming # to your target will appear in this column	
					MM=Mobile to Mobile call				
					LL, CN, TR all pertain to routing information and will not be relevant to your investigation				

Codes:

*86 is voicemail retrieval
 #225 is checking account balance
 #646 is checking minutes
 #777 is data/web services
 #738 is prepaid voicemail retrieval
 #729 is adding minutes for prepaid
 *67 is used to block the mobile #
 *82 is used to unblock mobile #



Explanation Form For Historical Records

Network Element name	Mobile Directory Number	Dialed Digit Number	Call Direction	Seizure Dt Tm	Seizure Duration	First Serving Cell Site	Last Serving Cell Site	Calling Party Number
This is the switching equipment that transacted the call. A switch is named by the basic geographic area it covers. Switches rout calls for hundreds of cell sites.	This is your target #	This is the number dialed to initiate the call. For inbound calls this number will be the same as the CUST ACCT column and for outbound calls this is the number your target dialed.	<p>This is the type of call, e.g. inbound, outbound, or voicemail.</p> <p>Inbound calls display the following numbers: 0 & 6. Calls to voicemail display the letter "F."</p> <p>Outbound calls display the following numbers: 1 & 3</p> <p>Mobile to Mobile calls do not capture cell sites and display the number 2. Any other letter or number is a routing or unknown call type and does not detail actual transactional data for a completed call.</p>	This is the exact date and time of the start of each call	This is the duration of the call in seconds	This is the cell site # for OUTGOING calls ONLY	This is the cell site # for INCOMING calls ONLY	This is the calling party that initiated the call. If the call is outbound this column will be the same as the CUST ACCT number. If the call is inbound, this is the number that dialed your target.

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